

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 38

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WAI-FAN YAU, DAVID CHEUNG, SHIN-PUU JENG,
KUOWEI LIU, and YUNG-CHENG YU

Appeal No. 2004-1888
Application No. 09/477,126

ON BRIEF

Before GARRIS, KRATZ, and JEFFREY T. SMITH, Administrative Patent Judges.

GARRIS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the final rejection of claims 68-73 which are all of the claims remaining in the application.

The subject matter on appeal relates to a substrate comprising a conformal dielectric layer which comprises silicon,

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oxygen bonded to the silicon and carbon bonded to the silicon,
and a silicon carbide layer adjacent the conformal dielectric
layer. This appealed subject matter is adequately illustrated by
independent claim 68 which reads as follows:

68. A substrate, comprising:

a conformal dielectric layer comprising silicon, oxygen
bonded to the silicon, and carbon bonded to the silicon, wherein
the conformal dielectric layer has a carbon content of at least
1% by atomic weight; and

a silicon carbide layer adjacent the conformal dielectric
layer.

The references set forth below are relied upon by the
examiner as evidence of obviousness:

Chiang et al. (Chiang)	5,817,572	Oct. 6, 1998 (filed Dec. 18, 1996)
Sugahara et al. (Sugahara)	5,989,998	Nov. 23, 1999 (filed Aug. 28, 1997)

All of the claims on appeal stand rejected under 35 U.S.C.
§ 103(a) as being unpatentable over Sugahara in view of Chiang.¹

We refer to the brief and reply brief as well as to the
answer for a complete discussion of the opposing viewpoints

¹On page 3 of the brief, the appellants state that the
appealed claims will stand or fall together and that claim 68 is
representative of the appealed claims. Accordingly, in assessing
the merits of the above noted rejection, we will focus on claim
68. See 37 CFR § 41.37(c)(vii)(2004).

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expressed by the appellants and by the examiner concerning this rejection.

OPINION

For the reasons well stated by the examiner in the answer, we will sustain the rejection before us. We add the following comments for emphasis.

The only argued distinction of appealed claim 68 relative to Sugahara concerns the claim requirement "a silicon carbide layer adjacent the conformal dielectric layer." In Sugahara, it is a silicon nitride, rather than a silicon carbide, layer which is adjacent patentee's conformal dielectric layer. Nevertheless, the examiner concludes that it would have been obvious for one having an ordinary level of skill in this art to replace Sugahara's silicon nitride layer, which functions as an etch stop layer, with a silicon carbide etch stop layer pursuant to the teachings of Chiang.

According to the appellants, the applied references contain no teaching or suggestion of a silicon carbide layer adjacent to a conformal dielectric layer of the type here claimed. Thus, it is the appellants' contention that "Applicants submit that there is not motivation or suggestion to combine the SiOC layer of

Sugahara . . . with the silicon carbide layer of Chiang . . ."
(brief, page 4). This argument is unpersuasive.

As properly explained by the examiner, Chiang teaches using a variety of etch stop layers including the silicon nitride layer used by Sugahara as well as the silicon carbide layer claimed by appellants (e.g., see the paragraph bridging columns 14 and 15). Further, Chiang teaches using these etch stop layers in conjunction with a wide variety of dielectric layers including any suitable spin-on glass dielectric layer (e.g., see lines 26-35 in column 13). Significantly, the dielectric layer of Sugahara is also a spin-on glass dielectric layer (e.g., see lines 7-10 in column 1 and lines 25-43 in column 3).

From our perspective, the combined teachings of these references would have suggested replacing Sugahara's silicon nitride etch stop layer with a silicon carbide etch stop layer of the type taught by Chiang based on a reasonable expectation that the silicon carbide would function successfully as an etch stop layer adjacent spin-on glass dielectric layers generally as taught by Chiang including the particular spin-on glass dielectric layer of Sugahara. See In re O'Farrell, 853 F.2d 894, 904, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988). We here remind the appellants that obviousness under section 103 requires only a

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reasonable, not an absolute, expectation of success. Id. Under these circumstances, we are convinced that an artisan would have been motivated to replace Sugahara's silicon nitride with Chiang's silicon carbide as proposed by the examiner in order to obtain an effective etch stop layer for Sugahara's dielectric layer via a material (i.e., silicon carbide) evinced by Chiang to be known in the prior art as suitable for this purpose generally and reasonably expected to be successful in Sugahara's environment specifically.

For the reasons set forth above and in the answer, it is our determination that the reference evidence adduced by the examiner establishes a prima facie case of obviousness which the appellants have failed to successfully rebut with argument or evidence of nonobviousness. We hereby sustain, therefore, the examiner's section 103 rejection of all appealed claims as being unpatentable over Sugahara in view of Chiang. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

The decision of the examiner is affirmed.

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No time period for taking any subsequent action in
connection with this appeal may be extended under 37 CFR
§ 1.136(a).

AFFIRMED

Bradley R. Garris)	
Administrative Patent Judge)	
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Peter F. Kratz)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
)	
)	
Jeffrey T. Smith)	
Administrative Patent Judge)	

BRG:tdl

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